A Naval Safety Center Publication

approach

FEBRUARY 1975 THE NAVAL AVIATION SAFETY RE

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and

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B Rader

PUT PARACHUTES BACK IN HELICOPTERS?

By LCDR Arthur G. Doege
NAVAIRSYSCOM 53303D
LAMPS Mk-3 Avionics Design

CONSIDER a lone helicopter flying over RVN not so long ago. Two pilots and a crewman were returning to Homeplate at 2500 feet, 170 knots indicated. Then sudden engine failure, low rotor RPM, a blade hits the flap restrainer and parts company with the airframe.

Does that get your attention fellow helo drivers?

Consider another helicopter flying at 2500 feet stateside. It was a test hop, barely 3 miles visibility, and an airliner suddenly appears on a collision course. The copilot, being a highly motivated gent, pulls full aft cyclic and the helicopter flips over on its back. Exit copilot and crewman. The plane commander, who by this time is paying some attention to what's transpiring, finds himself staring down at terra firma through his rotor system. He unstraps and moments later finds himself freefalling away from the aircraft. Having nothing more constructive to do, he pulls his ripcord and joins his crew on the ground for a well deserved, albeit somewhat shaky, beer.

What a difference between the results of the two incidents described. One crew flew the next day, the other crew never flew again. Why? *One crew had parachutes – one crew did not.*

The difference really goes much deeper and lies in the

psychology of the two plane commanders. Neither HAC really believed he would ever have to part company with his aircraft while it was still in the air, but one pilot required parachutes onboard routinely and the other sloughed off his responsibility to his crew and sacrificed parachutes due to comfort, expediency, or ignorance. The prudent HAC was rewarded with extra longevity – the other had a wild 15 seconds or so to ponder the parachute he left on the deck.

The surviving crew was composed of civilian test pilots performing a routine flight to check engine power. The flight was to be only 15 minutes long. The other crew was Navy, and regretfully, very typical of the Navy crews that fly today's helicopters.

That is what this article is all about! The average Navy helo lifting into the air today will not have parachutes aboard. In an age of enlightenment, when multiengined monsters such as the P-3, OV-10, S-2, and C-121 are not even considered ready for preflight without parachutes, our intrepid, golden-haired helo boys leap into their whirlybirds with nothing but a crooked grin and an airy wave of the hand.

How does it happen that a major segment of naval aviation flies without parachutes? Therein lies a tale. It's high time to resurface the facts and stimulate a resurgence of interest in parachutes for helicopter crews.

Interviews with fleet pilots about parachutes resulted in the following reasons being given for not having parachutes in their aircraft:

- When it's my time to go, I'll go. (Followed by a theological discussion of the doctrine of predestination that rivals Linus's ponderings on the nature of the Great Pumpkin.)
- Helicopters never fly high enough for successful parachute escape.
- Parachutes are unduly restrictive to movement. (Actual quote was paraphrased for purposes of publication.)
- There is no provision for parachute storage in helicopters.

Let's take the reasons in order:

When it's my time and accompanying philosophy, rationalizations, and gestures are pretty heady stuff to the average helicopter pilot. In one easily mastered line and mannerism, the helicopter pilot emerges from the colorless mass of his aviator contemporaries and steps forward to take his place with John Wayne, Kirk Douglas, Snoopy, and the Road Runner as the folk heroes of the age. Like his partners, he draws himself erect with a snarl, hooks his thumbs in his belt, and with his head proudly erect, he contemptuously spits in the face of death.

However desirable the reputation gained by joining

hands with Snoopy and the boys, our young helo heroes are playing in the wrong league. Snoopy can spit at the Red Baron all day if he wants to, but a helicopter pilot freefalling from 2000 feet without a parachute will find the wind he has been spitting into, is a very strong wind indeed.

When it's my time does not hold up under logical scrutiny. Although freefall from any great altitude might be a valid indication of time running out, a pilot who is able to exercise a silk-lined option might be surprised to find that it was his copilot's time that had come, not his. Or possibly the good Lord decided to eliminate a faulty airframe from the Navy inventory in answer to the prayers of a maintenance officer. You can't tell. Certainly a pilot who buys the farm because he failed to wear a parachute should look forward to some strained silences and some fancy foot shuffling as he explains his unexpected approach to the pearly gates.

When it's my time. I suspect there have been many helicopter pilots pondering the price of bravado for their last 10 or 15 seconds. Imagine yourself in their shoes and try a ground-based test of the sensation. Hold your breath for 10 or 15 seconds while you ponder on the chute you're not wearing and see if you like the feeling.

Helicopters don't fly high enough has an aura of logic about it. Helicopter pilots are infamous for getting nosebleed above 500 feet. Even so, if we trot out Newton's laws for a quick polishing, assuming that a body reaches a terminal velocity of 120 mph (176 ft/sec), we get the following results:

Time to Reach Terminal Velocity

$V = at\ 176 = 32.2 \times t \qquad t = 5.5$ seconds

Distance to Reach Terminal Velocity

$D = \frac{1}{2}\ at^2 = \frac{1}{2}\ (32.2)\ (5.5)^2 = 487$ feet

In nontechnical terms we have found out that a helo pilot at 500 feet has almost 6 seconds to get out and pull a ripcord. That certainly isn't much time, but motivation is a wonderful thing. Hold your breath for 6 seconds and decide if you don't think you could give a heck of a good try to departing an aircraft in that time interval if you were highly motivated. You certainly wouldn't have much to lose.

Continuing:

Time to Fall 1000 Feet at Terminal Velocity

$d = Vt = 1000 = 176t \qquad t = 6$ seconds (approximately)

Accordingly, your time to react and preflight your chute increases by 6 seconds every 1000 feet you put under your aircraft. That's about 11 seconds at 1500 feet and 17 seconds at 2500 feet. When you get to 2500, you have a pretty competitive chance of getting out successfully. A motivated pilot might make a stab at bailing out rather than twiddling his thumbs while acting as inside observer of a wild ride down.

Parachutes are clumsy and restrict motion is the first argument that is valid. It is, in fact, the governing reason for not wearing parachutes in helicopters. A helicopter pilot decked out in poopy suit, mae west, survival vest, 38, and parachute looks absolutely ridiculous waddling to his aircraft and is immobile to the point of uselessness during flight. Add to all that the additional load of towing TacAid, maps, flashlight, hardhat, and kneeboard and one can see why helicopter pilots are willing, yea eager, to find a good rationalization for leaving the big lummox parachute at home.

Even so, rationalizations are not a good response to the bleak state of the art of helicopter parachute design. Pilots of all ranks, stations, shapes, and sizes have been trotting out the rationalizations for so long that they have absolutely convinced the non-helo types that any time or money spent on parachute hardware is better spent on something else.

The torso harness worn by pilots of standard Navy tailhookers would appear to be capable of modification for helicopter use. It is less bulky to wear than a backpack parachute. Indeed, the attached Mark 5C raft that is worn around the middle provides a very welcome support for the lower back. It might be possible to modify the harness to allow a quick-donning chest type chute. The parachute itself could be stored beside

individual crew seats where it would be handy but out of the way. Such changes might alleviate a helicopter pilot's mobility problems, but the possibilities won't be pursued with any vigor until the Fleet indicates that they want it.

(By the way, I wonder if everyone realizes that the helicopter pilot's antipathy to parachutes, whether right or wrong, real or imagined, is so notorious that contractors are no longer being held to requirements to provide suitable places for parachute storage onboard helicopters. To be sure, the requirement exists, but no one feels it is worthwhile enough to enforce it. It is generally believed that helicopter pilots would not use parachutes even if stored onboard. The powers that buy aircraft have better things to do than fight losing battles for improvements that are not desired and will not be appreciated.)

We have now reached the end of the spectrum of

reason and rationalization behind the present state of affairs. The science of helicopter parachute design has been allowed to lapse to a point where the whole thing smacks of the classical "chicken or egg" argument.

But more facts must be scrutinized before this article is complete. One rationalization that has been heard among helicopter manufacturers is the argument that a helicopter rotor system is its parachute. If this is so, then the state of the art of rotor/parachute design has much for which to answer. Military specification 8501A, the performance specification for helicopter design, requires that helicopters be designed to allow a 2-second delay time for a pilot to recognize a malfunction which requires an autorotation and lower his collective to enter autorotation. There are few, if any, helicopters in the fleet which fulfill these requirements in all regimes of flight. Some very popular helicopters have delay times of less than one second in some flight regimes. That is a trifle "scosch" for pilots with normal reaction time and adrenalin levels. If you really want to take advantage of the rotor system as your parachute, your arm had better be springloaded to the full down position.

There are, of course, some types of emergencies which occur with a fair amount of regularity which make for a highly precarious autorotation. Inflight loss of the rotor system is one that comes immediately to mind. Also, engines have been known to jam at full power in some helicopters. The aircraft will fly all day (or at least to fuel starvation), but securing the engine to enter an autorotation has resulted in the demise of the first two crews that tried it. (A technique has now been developed and the last few crews have been successful in their attempts to land.)

Until recently, the H-3 NATOPS manual suggested a quick preflight of your parachutes in case of loss of the tail rotor. The procedure is now open to question because a pilot (probably without a parachute) lost a tail rotor and performed a very successful autorotation. This happy result indicates the value of motivation but should not be taken as an indication of the value of sticking with an aircraft under circumstances that the contractor feels are untenable. *All in all, the argument that a helicopter's rotor system doubles as a parachute is of dubious value.*

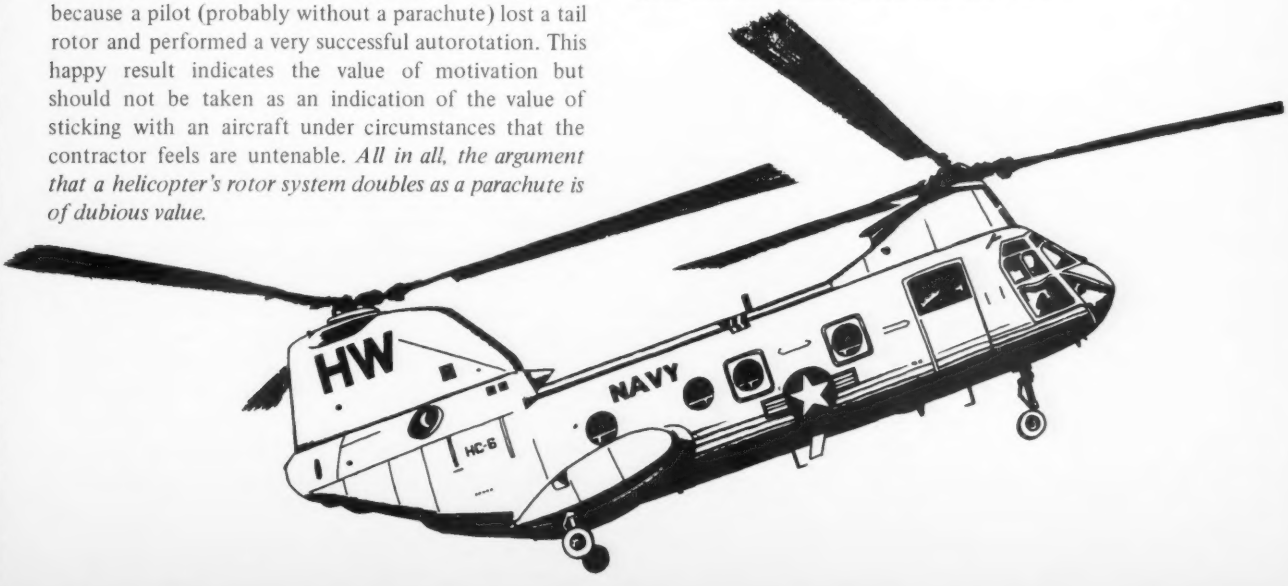
A final factor militating against parachutes in helicopters is that squadron allowances provide for only a token number of parachutes in each helicopter squadron. One might suspect that the number of authorized parachutes has been limited because the Navy suspects they won't be used in helicopters and thus there is little benefit to be gained in storing many parachutes in the paraloft. One can only suspect that obtaining parachute authorizations would not be an insurmountable obstacle if the Fleet really wants them.

And so, comrades, the discussion ends. The OV-10 goes into combat with zero/zero ejection and the Cobras follow them with no inflight escape. P-3s fly with parachutes for all, H-3s and H-53s fly with parachutes for none. If you believe that the situation is right and just, so be it. If you helicopter pilots would like a change, let yourself be heard!

CNO requires the use of parachutes in certain naval aircraft. This requirement for helicopters may be waived by the CO. There are many arguments why parachutes are not required in helos. For example, certain inflight catastrophes (blade failure) would generate such violent forces that, even if chutes were worn, flight crews probably would be unable to escape.

Furthermore, stowage vice wearing parachutes would be of little value in most types of emergencies since time would prevent donning them. (There also may be an ethical point to consider if crewmen wore chutes but their passengers didn't wear them.)

It is noted, however, that bailout is a recommended procedure for fire in flight, and in the H-53 a similar recommendation exists for a rotary rudder drive system failure. The continuing deficit of some inflight escape system is of increasing concern – reflects NOV '74 issue of APPROACH: "No Easy Way Out" – and readers' comments on this subject are solicited. – Ed.



An LSO's Stand for Safety

Safety must often be weighed against 1) the need to get the job done, 2) the tempo of ops caused by limited training facilities, and 3) plain old expediency. Nevertheless, there comes a time when individuals must take a stand or else stand by and see the safety effort degenerate into a program of lip service. One such individual has communicated to the Naval Safety Center the details of a situation he faced which provides a number of lessons. Here's his story:

"AS an experienced LSO, I believed that my opinion of a carrier pilot's ability to fly his aircraft safely aboard was respected. After my squadron's last carqual trip with a mixed bag of nuggets and old pros, I was told my judgment was pure emotion. Therefore, this emotional LSO has an emotional tale to tell.

"After working a few pilots, I became aware of the pronounced hole behind the ship. Each E-2 arriving in close

had to add power to prevent a rapid sink rate, then take it off as he passed through the 'vacuum.' Well, here came one of the nuggets who had had a hard time during FMLP. In fact, earlier, I had recommended to the CO that we not take this aviator to the ship because of his marginal performance since reporting to our squadron.

"His first couple of passes at the ship were touch-and-go's which were not good, but were acceptable. Performance on his next four traps was progressing further toward unsat. The passes were rough, but he did respond to calls from the LSO. Pass No. 7 was rough, but he snagged a wire. There followed a waveoff and a technique bolter (termed a hook skip).

"The next pass looked like the previous one – settle in close . . . little/not enough power until he went low, not responding to power calls . . . calls given with the cut lights as I had lost my transmitter as he rolled onto final. The tailhook ticked the round-down and a one-wire was snagged – luckily. Rather reluctantly, I thought to myself that I should give him the benefit of the doubt and continue to work him. By this time, he needed only one more trap to attain his required landings.

"With my radio transmitter working again, I observed the *Hummer* roll into the groove and again, as happened previously – an extremely high sink rate in close. I saw the decelerating action as well as the pronounced sink rate.

"In quick succession, I called for power (no response), called again, used the lights, and called again. I began to holler and scream for power at the same time I hit the waveoff lights. The sink rate stopped, the nose came up, and the aircraft began to climb very steeply.

"The phone talker who was standing next to me vanished. My assistant LSO casually eased over toward the net, ready to bail out. At this time, the nose of the aircraft came down – the tail seeming to pivot around the CG – just missing the round-down. The hook left a definite mark 3-4 feet forward of it. The aircraft thereafter never came close to the wires as it seemed to 'elevator' into the sky.

"The bird was given a steer home for a much needed structural inspection. At this point, I was through with this determined-to-kill-himself aviator as well as the flight suit I was wearing. I sent a message to the squadron to keep this gent home. (I later learned the message was not received by the home guard.)

"Next day, I found the same individual out again to get his last trap for qual. I had advised the ship's air boss and air ops that I didn't want to see him again. They agreed.

"Well, when the squadron aircraft arrived overhead, tower advised the flight leader of my decision, and a discussion followed *on the air.* The flight leader was the squadron CO. He was disturbed that the LSO would not take the responsibility of letting this aviator trap one more time. I refused. I felt this aviator was not capable. He was the worst I had ever seen at the ship. Also, I must qualify pilots with the thought in mind that the helpless crew flying with him can do little to help him or themselves.

"I finished waving the rest of the E-2 quals and left the ship. Upon returning to the squadron, I went to see the CO. He was angry that I did not comply with his "request" at the ship. Our talk brought out that I did not have a case against the aviator and that my opinions were based solely on emotion (or so I was told).

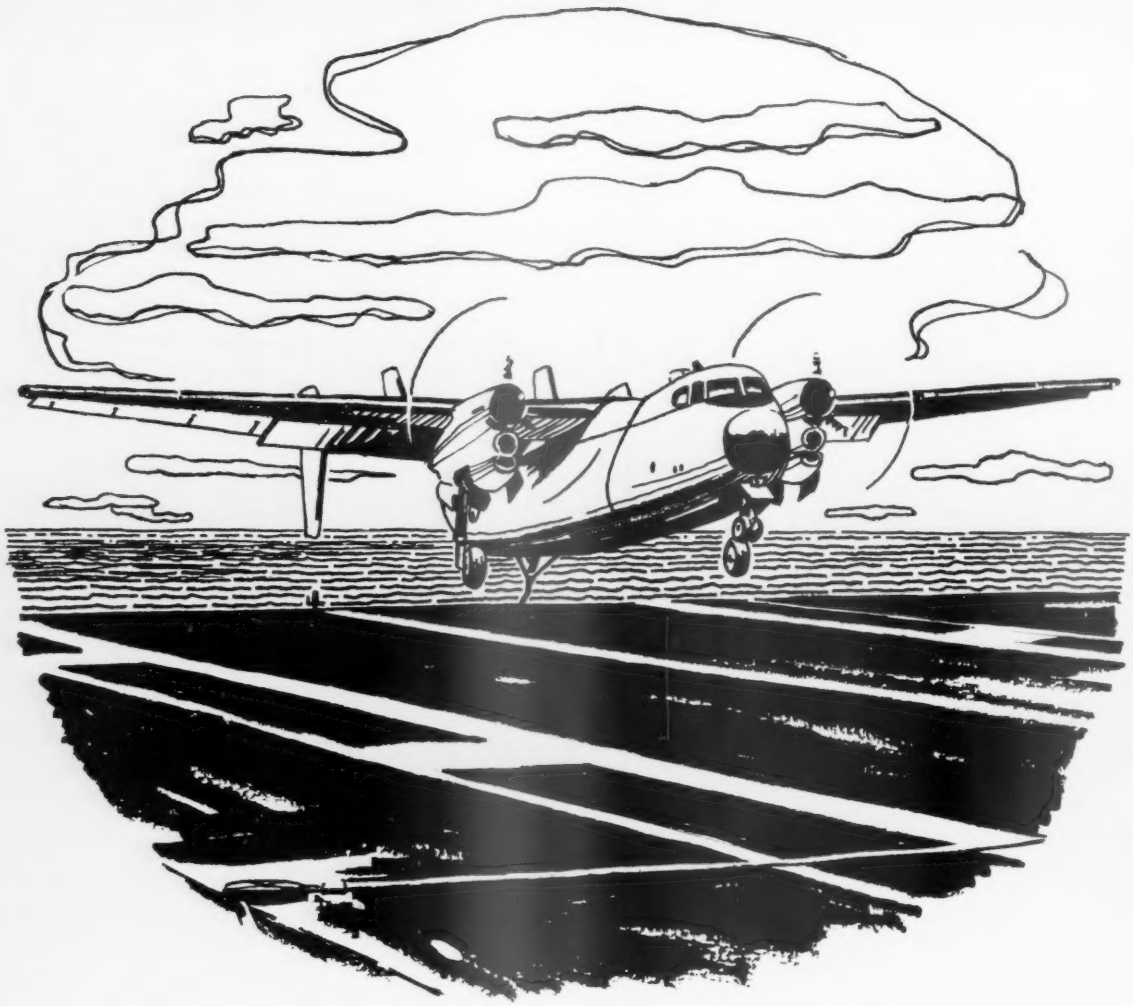
"I was relieved by an LSO who had consented to take the shaky aviator for two touch-and-go's and one trap. I didn't agree, but it was done; and the E-2 driver's ability didn't improve much. At least, he didn't hit the ramp again.

"That was my last trip as an LSO."

Comment: The E-2 has the highest pilot factor night CV accident rate of any multipiloted aircraft (also higher than several single-piloted aircraft). It also has double the day/night bolter rate among the multipiloted community. These facts suggest that carquals should be very closely monitored and that marginal performers should be weeded out.

LSOs fill a critical position in this process and are entitled to command support. We must develop and nurture a program of quality first, quantity second.

Finally, if our safety program is to be viable, we must ensure that those who take a stand for safety do not suffer professionally. On the contrary, such individuals deserve to be rewarded with increased responsibility and professional advancement. Only in this way can it be fully demonstrated that Naval Aviation is serious about safety. ◄



Little Things

THE FOLLOWING is an example of how little things can add up, creating a situation that could easily result in a mishap.

A C-2A was on a fleet logistic mission to a carrier. The aircraft commander had considerable C-2A experience (88 carrier landings) and, for this flight, was flying copilot. The pilot at the controls was on his first C-2A tour and had 24 carrier landings.

The pilot had planned the flight and suspected the ship would be operating under EMCON conditions. Both pilots knew that their squadron policy was not to break EMCON unless absolutely necessary.

The flight to the ship was normal, and the *Greyhound* orbited the ship until they observed two jets break and turn downwind. The C-2A followed, and the aircraft commander selected the ship's land/launch frequency on the UHF. The land/launch frequency was not set in

manually.

The jets were waved off, as the ship wanted the COD aboard first. Rollout on final was high with no ball acquisition, and the aircraft commander told the pilot that he was high. The pilot corrected and eventually established the bird on glide slope with a centered ball, 20 units angle-of-attack, and a power setting commensurate with gross weight. At this point, everything was looking good. The approach proceeded normally until just prior to the ramp where the aircraft settled rapidly. Touchdown was not unduly hard, but the hook struck about one foot down the round-down. The subsequent engagement was normal, and there was no aircraft damage.

Conversation with the LSO and subsequent investigation revealed the following:

- The frequency for the preset land/launch channel was incorrect.
- The wind during this approach was 20 degrees right at 32 knots.
- The ship had broadcast the wind information and the LSO had called for "power" during the approach, on the land/launch frequency.

Concerning the relative wind, it is realized that there may be many factors which will influence a carrier skipper's ability to maintain a favorable relative wind – proximity to land, other ships, restricted areas, etc. Aircraft Bulletin Number 10-10A states the following under *Recovery Crosswind:*

> "With a constant recovery crosswind component, turbulence on the deck increases. Starboard recovery crosswinds are accompanied by wind velocities in the landing area considerably lower than free-airstream velocity. The burble aft of the ramp becomes stronger and moves closer to the ship as the magnitude of recovery crosswind is increased. The airflow discontinuity requires corrective pilot technique if the recovery crosswind exceeds 7 knots for CVA-59 class and subsequent carriers and 10 knots for all others. Even with corrective pilot technique, sink speeds 3 to 6 feet per second in excess of those experienced during normal (no recovery crosswind) operations can be expected.
>
> "In view of the above, shipboard aircraft recovery operations with recovery crosswinds in excess of those specified above should be avoided."

A relative wind of 32 knots at 20 degrees starboard results in a crosswind component of about 10 knots. It is evident that a pilot could expect some problems during a carrier approach under these wind conditions. As is often the case, a combination of little things added up to a near accident. In summary, these "little things" are as follows:

- Squadron communications failed to notify maintenance of proper land/launch frequency so it could be preset.
- Neither pilot ensured that proper land/launch frequency had been selected on the UHF and both were unaware that they were not on the correct land/launch frequency.
- Pilots were not unduly concerned about not receiving on the UHF because the ship was expected to be operating EMCON.
- Ship operating with a 20-degree starboard relative wind.
- Ship broadcast information and therefore *assumed* pilots were aware of wind conditions.
- Pilots unaware of wind conditions at the ship and, therefore, not prepared for potential hazards that existed due to the starboard relative wind. ◄

A Good Lead

AN accident recently occurred in which the pilot and aircraft were lost at sea. Disorientation/vertigo while flying as wingman most probably contributed to this mishap.

Instrument flying is a challenging business under any conditions, but places special demands upon a flight leader. Not only must he perform every task required of a single aircraft, but he must remain constantly aware that he is the primary attitude reference for his wingman. Coordinated maneuvers with smooth attitude and power changes are essential. The flight leader who *does not* or *cannot* execute a well-planned lead can easily place his wingman in a precarious position from which he may not recover.

Flight leaders must know the proficiency level of their wingman, must execute judicious control movements, and should limit angles of bank to 30 degrees when leading a flight in instrument conditions. Don't place a wingman in extremis by exceeding his limitations. ◄

Roger Ball

FOR all those frustrated pilots who have argued, growled, agonized, and fumed about the manner in which their obviously superior trap was grossly and unfairly misrepresented by the LSO grade, the perfect grading system has at last been derived. After half a century of pleasing none of the people none of the time, LSOs now have a grading system, courtesy of LT Billy Boatwright, that should satisfy one and all.

OK Pass: One in which a sharp LSO, with a keen eye and cunning judgment, recognizes talent when he sees it.

Fair Pass: One in which a sharp pilot, only through cat-like reflexes and superior skill, maneuvers his aircraft through the worst burble in the Fleet and somehow salvages a potentially disastrous situation.

No-grade Pass: One in which an obviously superior pilot is finally overcome by the combined effects of wind currents, a bad CCA, and unpredictable deck movements with the LSO wearing corrective lenses.

Power Call: A strictly advisory call which generally means that the LSO has lost his nerve and obviously doesn't understand what the pilot has in mind. Primary cause of most bolters.

Waveoff: A complete breakdown in communications and a gross breach of trust on the part of the LSO in that he has preempted an opportunity for the pilot to really display his recovery skills in a sticky situation. (Regarded as advisory, also, by some.)

Submitted by CVW-7

LOOK AROUND. What Do You See?

By LCDR Alan K. Jenkins
VP-16

TOUCHDOWN was on speed at 130 knots. The PPC eased the power levers into reverse and commenced a smooth deceleration. He kept the nosewheel glued to the centerline as runway markers slid silently by, only 32 feet away on either side of the main gear, and slowed to taxi speed long before reaching the end of the runway. Does this sound normal? Not really.

A quick calculation of the width of the P-3 mainmounts plus 32.5 feet on each side adds up to a width of only 99 feet. Operations from deployment bases always have inherent dangers, but operate routinely from a 99-foot taxiway (runway being repaired) and you really increase the danger factor. We did it safely for 5 months.

How squadrons prepare for deployment vary in styles and mannerisms, but they all have certain basic guidelines to determine if they can accomplish the mission. For us, our deployment and operations from this narrow runway meant a lot of training and a deep sense of safety awareness. Training that had to be accomplished before we could accept around-the-clock, all-weather missions began the day a pilot or crewman checked into the squadron. It continued until each one was peaked to the highest level of professionalism attainable. Extensive classroom training was the starting point. This was interspersed with all other methods of training with the goal throughout being quality.

Pilots were trained in all phases of the P-3 systems. Then they were trained some more, and grilled, and examined. Practice takeoffs and landings were conducted until pilots dreamed about bounce drill. We bounced in an area painted on our runways with white lines 99 feet wide to prepare for deployment. The key was total safety. All the training in the world won't work unless everyone thinks and practices *total safety.*

With us, safety awareness was an attitude, and that positive attitude was responsible for the success of our mission. It began at the top and generated throughout the squadron. You can look at any squadron and quickly tell whether a safety awareness attitude prevails. For example, safety awareness is visible in:

- *Management.* The pace is set by the CO. If he sets the example (not just lip service), everyone falls into line. You will notice an acute safety awareness up and down the line. You will find good, open lines of communication between departments, and justifiable command backing will not be lacking for those who work and fly on the aircraft.

- *Flightcrews.* You will find adherence to squadron SOP, NATOPS, and tactical doctrine a rule. You will find good crew coordination, and very few decisions will have to be made between mission necessity and blind can-do.

- *Maintenance.* Extensive use of MIMs and IPBs will be in evidence. It will be rare to find someone not qualified attempting to perform a job. Good supervision and pride of work are hallmarks of this squadron. What might be accepted as a "go" gripe under less demanding conditions could not be accepted for our operations from narrow runways.

- *Administration.* Here, the attitude of squadron administrative personnel to eliminate distractions or to ensure that flightcrews are subject to minimum distractions with routine administrative duties is important. It frequently meant the "extra mile" for administrators when deployed.

Most squadrons can accept and cope with work of various styles and methods, but they must not accept anything short of professional performance. This includes a positive safety awareness attitude. Lots of training and a positive attitude will ensure the safe accomplishment of the mission. Look around. Do you like what you see?

If Everyone Does His Job, Everything Will

How many times have you heard the phrase "Everyone do his job and we'll have no problems" or something like that? We use NATOPS, MIMs, TIMIs, SOPs, and MRCs to help standardize our work so as to prevent mishaps and mistakes and to make things go smoothly. The best of safety standdowns or back-in-the-saddle programs are fruitless unless everyone does his job. This article relates a perfect example of a needless occurrence because someone ("everyone" may be a plausible substitute) didn't do his job.

OUR squadron completed its shipboard buildup in early December in preparation for an extended deployment. The aircraft were to be flown off the ship to NAS Homeplate where they were flown only as necessary.

So, we flew our birds to the carrier's home port for hook aboard and then found ourselves bidding adieu to our loved ones soon after. Our holiday leave period was over, and I, the squadron's safety officer, was setting up and overseeing an effective combination back-in-the-saddle/safety standdown program.

It seemed as if everyone in the whole world had planned to use the transit time to fill their training requirements since the pilots weren't doing anything during this time anyway. Right! There were target planning (we're an attack squadron), SERE briefs, area operations briefs, plus the 2-day safety review. And so it was done.

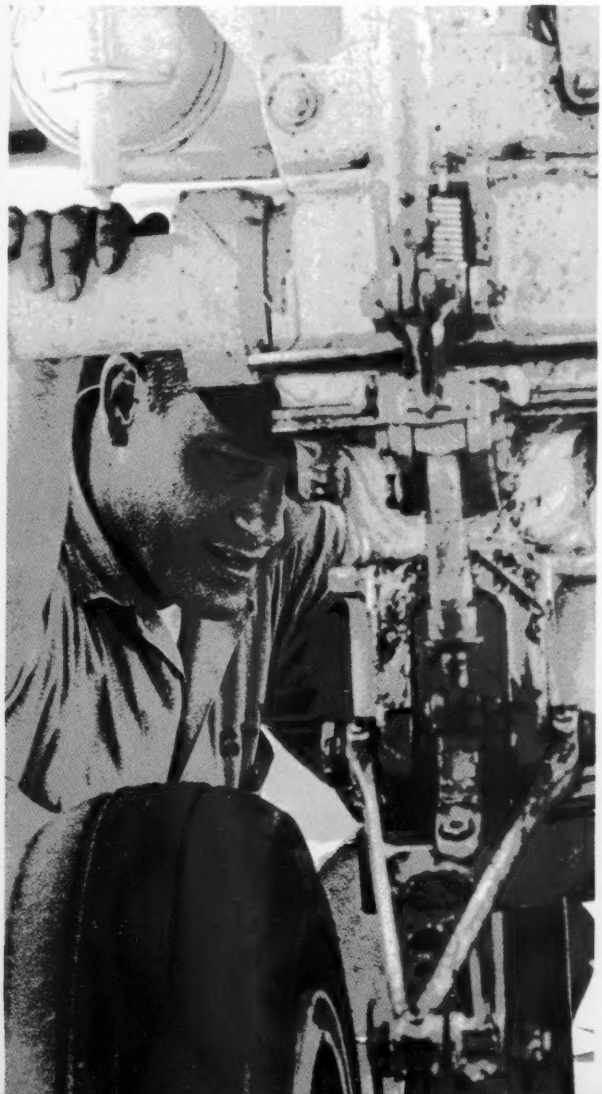
Our safety review included the usual lectures: LSO – "Fly the Ball" brief; CATCC – "Fly the Radial" brief; Helo – "How We Rescue" brief; Survival Equipment Officer – "Wear the Wet Suit" brief; and the regular aircraft limitations and emergency procedures review.

There was some action training to help keep the "sleepers" awake. We did the harness hang, went through the motions of ejection and emergency exit from cockpit, saw an eye-opening demonstration of the SSD (survival support device), and performed a 2-hour per pilot OFT in our own aircraft, as the ship's OFT was down at the time. (Even if it had been up, there were too many pilots requiring an OFT in too short a time.)

A report of training accomplished was sent to CAG with a feeling of pride and confidence that *we were ready* to "do our thing."

Crossing the big pond was a busy period, and the time

Go Smoothly...



just flew (when you're having a good time, it always does), until the day before INCHOP. On that day, 11 of our 19 pilots managed to thrust themselves at a moderately pitching deck. Nevertheless, a suitable divert field was available.

The following day was turnover with USS HAPPYTOSEEYA. We didn't get too close to these people as they were obviously carriers of some rare disease that affected both their hearing and seeing capabilities. Their eyes were totally white, which rendered them sightless. Their speech was totally impaired, and it was impossible to understand them. It was later explained to me by our flight surgeon that it is extremely difficult to talk with anyone so near to seeing home.

Bong-bong, bong-bong. We were now part of Y Fleet and anxious to leap into the skies after such a long vacation from the cockpit. Our first scheduled hop as part of Y Fleet was a seven-plane "tactics" hop, with a flight purpose code of AA1 (shipboard unit training, fundamentals).

After reading the account to follow, you might tend

to agree with the pilots involved that the appropriate flight purpose code should have been AQ4 (shipboard airshow). Here's how it was, not how it should have been.

Event ONE: Pilot	Flight hours prev. 30 days	Number traps prev. 30 days	Number days since prev. trap
Pilot A	2.8	1	2
Pilot Z	2.0	0	37
Pilot B	2.4	1	2
Pilot C	0.8	1	2
Pilot D	0.0	0	40
Pilot E	0.0	0	37
Pilot F	0.0	0	33

NOTE: Pilots E and Z had a total of 3½ months fleet carrier experience between them. Pilot E's aircraft went down for hydraulic leaks. The total number of hours for the seven pilots (who became airborne) in the previous month add up to a *walloping* total of 8.0 hours. Total number of traps previous month — *THREE.*

It's obvious, even to the newest of nuggets, this was not the situation that every CVA skipper, CAG, squadron CO, or ASO likes to face. But, one of the attributes of a naval aviator is flexibility and lots of guts. Aside from the fact that we (I was Pilot B in the extravaganza) were a little green (for why else would we be scheduled for refresher landing practice?), the remaining conditions were acceptable. The weather was 1500 feet overcast (tops unknown, but *suspected* not to be too high), resulting in a Case II departure. Three pilots hadn't flown in over 30 days, and two aircraft hadn't been flown in 17 days. *We were ready.*

We manned and managed to start our aircraft without anything unusual happening. All of the poststart checks were normal, except that one bird had hydraulic problems and didn't get airborne.

Sitting and waiting for my turn to taxi forward, I noticed it was quieter than usual on departure control. I gave a call for radio check without response from departure. One of the members of our flight, however, chimed in "loud and clear." What else could one assume but a zip lip departure?

In the next couple of minutes on deck, most of the members of our flight had a two-way communications check with each other. Pilot Z, who in reality is Rocket 19, had a weak transmitter, but I was able to read him (he was in the aircraft next to me). Oh, yes, there was no SINS available, and I didn't get a good check of the ship's TACAN, but that's not unusual . . . happens "all the time." *We were ready.*

The six of us, along with 30 or so other aircraft, launched into the blue. "Hmm, still not a word from Departure. Can't arc on the 10-mile arc without a TACAN." My thought process was interrupted by the fact that departure control didn't want to talk to us. This downgraded the accuracy of my DR-ing out other planes.

In the following 20 minutes, there was a flight of five together, with two unaccounted for. We five had unusual similarities in our comm/nav difficulties and were unable to resolve them.

In about 10 minutes, we found another squadron's aircraft to join up with to get a usable ship frequency (we used hand signals). By then, Pilot Z had sighted us and joined up. (He later confessed to me that this was the most terrifying experience he had gone through; a weak transmitter, no navaids, and an overcast sky. He could hear us talking, but his transmissions were too weak for us to hear.)

Once we got a frequency for ship's marshal, we found that Pilot E never made it off the flight deck. By this time, it was obvious, and most probably to you, too, that our difficulties resulted from lack of rechannelization of our radios to the Y Fleet frequencies. That should have been incorporated into our system the day before.

Dangerous? Could've been. Pilot Z (Rocket 19) was desperate at the time. If the weather hadn't been as good as it was on top, he might not have seen anyone. In fact, none of us would have. There would have been six essentially no comm – no navaid birds in the air, with respect to the ship.

What about a divert field? Sure, there was one, and its navaids were up, but not one of us knew at the time of takeoff if any of our aircraft's TACANs were up. We even tried going through the lower TACAN channels because *everyone knows* that shipboard TACAN channels are *always* under 20. Well, my friends, this was not the case, as the channel was above 50.

The only thing we had going for us was the good weather above the overcast. There were other ways of solving the problem on an individual basis (unused, but at hand) if we hadn't joined up with another squadron's aircraft. Guard frequency, aircraft radar, and even proceeding to the divert field were all possibilities. Not all pilots would think of all the possible solutions during such a distressing situation.

Disaster was thwarted, but was this "airshow" necessary? It might not have been so funny. Did everyone do his job? What happened? Was all of my work setting up the safety standdown/back-in-the-saddle in vain? Could I have added something to my safety review program that would have precluded this incident? I don't think so. It all boils down to the saying "If *everyone* does his job, everything will go smoothly."

Our problem started back 2 days before when someone called our readyroom on the squawkbox and told someone to pick up the new frequency cards that will go into effect in 2 days. *They were not picked up.* Who was at fault? How about the SDO? Did he forget to send someone after them? Was he distracted while in the process of doing just that? The same thing could be said for the man who was sent (if one was ever sent) to pick up the cards.

One could point a finger down the line. The communications officer or the avionics division officer or any of the shop supervisors might have thought that a change of frequencies occurs with a change in Fleet operations. In fact, any of the oldtimers in the outfit should have thought of it. What about the man in IOIC that called down and noticed that the new frequency cards weren't picked up? The day of flight operations on the new frequencies, the cards were still stacked in IOIC. Undetected?

So, I ask once again, who wasn't doing his job? We learned a lesson at no cost to the government and only some personal embarrassment to many individuals who might not have been doing their job. Every man's responsibility cannot be listed on his job description notice.

Anymouse

A Casual RON

HOW many times do we have to tell people that walking through props can be bad for their health? I'm a NATOPS qualified P-3 TACCO who has to fly with the Reserves to get my flight time. Over the last year and a half, I've changed my opinion about the Reserves from that of ridicule to one of respect. Last month, however, I went to NAS East Coast for a flight to NAS Deep South in a P-3 and I feel that this particular crew deserves some criticism.

To start off, the briefing was short – no mention of weather or safety and damn little about emergency procedures, in spite of the fact that some of the passengers were not familiar with the aircraft. I took one P02 aside and checked him out, but I noticed that nobody else bothered. Since I had gotten some good words about the PPC beforehand, I assumed and hoped that he had already briefed the crew. Wrong, he hadn't; it was a makeup crew.

I took a seat in the radio compartment to observe starts on No. 2 and No. 1 engines. Then I moved over to see No. 3 and No. 4. Just as I got to the window, a lineman, who had disconnected the huffer, walked right through No. 3 prop! (Remember, No. 1 and No. 2 are turning, and No. 3 is next.) I rushed to the flight station and informed the pilots and the FE. They shrugged it off and said it was the only way to do it. Their implication was "We know it is wrong, but drop the issue 'cause that's the way we do it." At this point, I started looking for other things, real careful like.

We got airborne and headed south into overcast and undercast skies with thunderbumpers enroute. The radar wasn't ground checked and wasn't turned up inflight. We made a stop on the way to drop off the 3P. That Condition 5 had to be the loosest that I had ever seen. Crewmembers either did not strap in or did so very loosely, all kinds of gear adrift, and the 3P changed into civies 20 minutes before landing. And would you believe – the FE told me that there was no longer a requirement to wear hardhats? My brain bucket is like Linus' security blanket. Then the crewmembers and passengers alike jumped out of their seats before rollout was completed.

For the return flight the next day, the crew showed up 30 minutes prior to scheduled takeoff time to fuel and preflight. The 2P beat them in by half an hour and filed for the trip home. Then the PPC came along and tried to file again because he didn't know that the 2P had done it. Since TSTMs were predicted again, I turned up the radar for a ground check, but was told to shut it down because it made too much noise in the flight station where the pilots were shooting the bull. This trip, we had no briefing at all. And of all things, luggage and gear from the SERVMART weren't even secured. Boy, was I glad to get back to NAS

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

East Coast!

These and other events raised my concern to a rather high level, but I had the distinct feeling that if I said anything, I would be told again to drop it. What happened, anyhow? As I see it, that crew was made up so they could get some flight time. They probably felt that nothing would go wrong since it was a routine airways flight. They were complacent. Unfortunately, I've seen more than one routine flight become one helluva can of worms. So, although I didn't say anything at the time, I'm asking this one crew in particular and all other crews "How many times do we have to stress safety?"

Please say it again, Sammouse, *SAFETY FIRST, LAST, AND ALWAYS – FOR EVERYONE!*

Wuzgladtogetbackmouse

Cut 'em, Tape 'em, and Stand By

A P-3C from the south made an unscheduled landing at NAS Brunswick while enroute north. The reason: a magnetic chip detector light on No. 4 engine. The host squadron's mechs checked and cleaned the magnetic detector plug and found no chips. The plug was replaced, and the aircraft taxied out to the duty runway.

Before takeoff, the chip light came on again. The crew aborted and returned to the host squadron for further troubleshooting.

So far, so good. This time, more help was sought. The maintenance control chief and an ADJ QAR discussed the problem with an electrician. An AE was sent out to take a look and found a short in the wiring at the chip detector cannon plug. The AE reported his findings to the aircraft's flight engineer.

Well, the crew was in a tremendous hurry to leave. So, the flight engineer, a lieutenant, and a chief in the crew decided to cut the wires and go flying.

The AE was dumbfounded. He tried to explain the situation, but to no avail. The crew was bound and determined to cut 'em and go. The AE was caught between a rock and a hard place. He got some tape to wrap the end of the wires. They were near the fuel control, and everyone knows what hot wires arcing around a fuel control could do. As soon as the wires were taped, the electrician notified maintenance control of this absurd situation.

Meanwhile, the aircraft took off and ultimately completed an uneventful flight to destination. If a chips situation had occurred, there wouldn't have been any way in the world to tell. The light had been disconnected.

This is a classic hurry-up instance where both ground and flightcrews lost the bubble. They threw away their badges of professionalism. It wasn't even can-do. It wasn't anything but plain old Delta Sierra. No one should ever be in that much of a hurry.

SlowAEmouse

We couldn't agree more!

Careless Lineman

I WAS the plane captain of an SH-3D on a recent cross-country flight to NAS Gulfland. After landing, we taxied into the transient line where a truck from the transient line shack had started out toward us. When the HAC stopped the bird, I unstrapped and got out to observe the disengagement and shut down.

The pilot secured No. 2 to disengage, and while watching him and the slowdown of the rotors, I didn't see the civilian from the linecrew, carrying a fire bottle, move inside the rotor arc. He walked up close to the helicopter, put the fire bottle on deck, and turned around to walk back out of the rotor arc. I signaled him to get down, and all he did was bend slightly at the hips while continuing to walk.

As the rotor brake took effect and the main rotor blades began slowing, the same guy started to walk back toward the aircraft. This time, I grabbed him, and after the blades stopped and No. 1 was secured, we had a little chat. As soon as my HAC left the helo, he came over to us and also had a chat with the lineman.

He said he wasn't familiar with the SH-3D and that his experience had only been with the Coast Guard HH-3, but he hadn't had any trouble before. He could've had trouble this time; he could easily have lost his . . . head.

Shookmouse

TEAMWORK

AN RA-3B *Skywarrior* from VQ-1, piloted by LTJG Phillip L. Sowa, was enroute from Hickam AFB, Hawaii, to NAS Alameda at FL330. Two hours and 9 minutes into the flight, approximately 970 miles from Hickam, the port engine decelerated to 57 percent. Other indications were 200 degrees TPT, 500 pph fuel flow, oil and fuel boost pressures normal. Throttle movement had no effect.

An immediate turn was made back toward Hawaii as descent was commenced. Hickam airways radio was notified of the difficulty, and an emergency was declared. An HF/DF fix was requested, and although within single-engine range of Hawaii (15,000 pounds of fuel required, 18,000 pounds onboard), a request for a tanker was made.

Several air starts were attempted with no effect. Fuel crossfeed was opened, also with no change. Altitude was stabilized at FL210. The squadron duty office at Guam had been notified, and the squadron had initiated a phone patch. The squadron was briefed on the circumstances.

While enroute, several HF/DF fixes were received from the "Bullseye" HF/DF net and were of assistance in confirming the track. Hickam passed word that a KC-135 was being launched, but the *Skywarrior* advised that a KC-135 could be used for tanking *only* if it had a drogue adapter installed. Meanwhile, the squadron had notified the CINCPACFLT staff duty officer and requested that RANGER, which was operating off Hawaii, be advised of the situation and to launch a

tanker, if possible.

A KA-6D from VA-145, flown by LTJG Allen Wolters, with LT Rodger Burbrink as B/N, was launched from RANGER. A rendezvous was made under Honolulu Center control approximately 250 miles from NAS Barbers Point. The KA-6D was able to give the *Skywarrior* 6000 pounds of fuel, although tanking had to be accomplished at 10 knots below standard tanking speed. The KA-6D then escorted the *Skywarrior* to Barbers Point where both aircraft landed safely.

The *Skywarrior's* engine problem was caused by failure of a burner pressure tube. No other damage was incurred.

Quick, positive action by the flightcrew and supporting commands provided an extra margin of safety that could have saved the day had the emergency developed further. Even though the aircraft had sufficient fuel to return to Hawaii, the crew initiated a request for a tanker just in case headwinds were stronger than forecast or other delays developed. They also declared an emergency and requested that SAR forces be launched. The crew made good use of the "Bullseye" HF/DF net to assist in navigation and to pinpoint their position for all concerned.

The rapid response of RANGER illustrates the effectiveness of command communications systems and the practical use to which they can be applied. A potential accident ended with successful recovery of crew and aircraft through positive and professional action by those involved.

LIFE CHANGES AND ACCIDENT BEHAVIOR

By Robert A. Alkov, Ph.D.
Naval Safety Center

IN THE past, aviation safety human factors analysts have concerned themselves with the determination of individual "accident-proneness." The accepted definition of accident-proneness referred to a stable lifelong personality trait – a chronic condition. Investigations into the personality factors which would be correlated with accident-proneness among naval aviators, however, have proven fruitless. This is because of the rigid selection process which naval aviators undergo upon entering flight training. Most truly "accident-prone" aviators are weeded out early in the game. Also, we know that having repeated accidents does not necessarily indicate accident-proneness. We must first know something of an individual aviator's exposure to hazard and other factors, which along with accident-proneness constitute a person's accident liability.

In addition to constructing a hazard exposure index for each aviator, we need to investigate these other factors which increase a person's accident liability. Rather than attempt to identify a chronic, long-term condition which may or may not exist in our aviator population, we might be looking at the acute situational factors which may precipitate an accident. By their nature, they are short-lived and hard to pin down. The confluence of all such factors may never have occurred before and may never occur again. At the exact moment

Rank	Life Event	Mean Value
1	Death of spouse	100
2	Divorce	73
3	Marital separation	65
4	Jail term	63
5	Death of close family member	63
6	Personal injury or illness	53
7	Marriage	50
8	Fired at work	47
9	Marital reconciliation	45
10	Retirement	45
11	Changes in family member's health	44
12	Pregnancy	40
13	Sex difficulties	39
14	Gain of new family member	39
15	Business readjustment	39
16	Change in financial state	38
17	Death of close friend	37
18	Change to different line of work	36
19	Change in no. arguments with spouse	35
20	Mortgage over $10,000	31
21	Foreclosure of mortgage or loan	30
22	Change in work responsibilities	29
23	Son or daughter leaving home	29
24	Trouble with in-laws	29
25	Outstanding personal achievement	28
26	Wife begins or stops work	26
27	Begin or end school	26
28	Change in living conditions	25
29	Revision of personal habits	24
30	Trouble with boss	23
31	Change in work hours, conditions	20
32	Change in residence	20
33	Change in schools	20
34	Change in recreation	19
35	Change in church activities	19
36	Change in social activities	18
37	Mortgage or loan under $10,000	17
38	Change in sleeping habits	16
39	Change in no. family get-togethers	15
40	Change in eating habits	15
41	Vacation	13
42	Christmas	12
43	Minor violations of the law	11

TABLE 1

of the accident, however, they interact and combine to cause a human error.

The majority of accident behavior can be explained by personal stresses which cause a person to perform in such a manner as to increase his or her accident liability. These stresses may be produced internally or originate from the external world. They are difficult to predict because of their transitory nature.

A relationship between routine stress and diseases in man has long been sought. The practical use of the stress theory of accident and illness causation has, however, been quite limited. Factors causing stress and ability to handle it vary greatly from individual to individual. This variation makes it virtually impossible to quantify stress and to measure its effects in a statistically valid manner.

About 25 years ago, however, a psychiatrist, Dr. Thomas H. Holmes, now at the University of Washington, found that many diseases were correlated with life events. In studies, he asked more than 5000 patients to tell about life events that preceded their illnesses. These events covered a wide range – death of a spouse, change of job, divorce, birth of a child, etc. These events were noted on the patient's health records and were referred to in later visits.

Between 1949 and 1964, thousands of tuberculosis patients were studied. These patients had experienced life crises shortly before they became ill – for example, jail terms, financial difficulties, divorces, job changes, and repeated residential moves. The life events that were most frequently cited by these patients as occurring before illness struck them were listed.

Not all of the events were negative in connotation – some were ordinary events of the American way of life: family events, economic events, vacations, retirement, etc. The important factor was change – desirable or undesirable – in ongoing lifestyle – changes which would require adaptive or coping behavior.

CDR Richard Rahe, MC, USN, now at the Navy's Medical Neuropsychiatric Research Unit in San Diego, and Dr. Holmes found that illness follows a cluster of events that requires life adjustment. Each of these events brings about a significant change in the individual's ongoing life pattern and requires adaptive or coping behavior on his part.

To identify those life events that most frequently preceded illness, they asked 394 persons to rate the amount of social readjustment required for each of the 43 events listed most frequently by patients. By an arbitrary method, the life event given the top ranking by the judges, death of a spouse, was weighted 100 points on the scale. Using the rank order method, the other weights were calculated (Table 1).

Continued

In a pilot study, it was found that of those persons who reported LCUs (life change units) that totaled between 150 and 199 points, 37 percent had associated health changes within a 2-year period of such life crises. Of those with between 200-299 LCUs, 51 percent reported health changes, and of those with over 300 LCUs, 79 percent had injuries or illnesses to report. On the average, health changes followed life crises by one year.

Dr. Rahe made a similar study of 2500 officers and enlisted men deployed aboard Navy ships. Life change data were gathered for the 6 months preceding the study. The health change data of these men were examined after they had spent 6 months at sea. In the first month of the cruise, the high-risk group had nearly 90 percent more first illnesses than the low-risk group. The high-risk group had more new illnesses to report each month than their fellow sailors.

Dr. Holmes says that although reported illnesses have their own special causes, something else helps them along. This something else is what happens when a major life crisis occurs.

No particular event was linked to a particular disease. Undesirable events – the death of a spouse, for example – might bring about severe depression. Nevertheless, a total of life events, each not in itself especially undesirable, frequently leads to infection, allergy, or accidental injury. The important point was the sum – the total impact of life events which require coping behavior. When the life crisis is severe, the onset of illness is likely.

Until recently, application of these findings strictly to accident behavior, however, had never been attempted. The knowledge that the emotionally stressed individual may be more prone to illness and accident is not new. It has long been known, for example, that overstressed individuals often engage in irrelevant activities or rigid stereotyped behavior and experience loss of discriminative skill and mental efficiency. The safe performance of complex tasks (such as those demanded in aviation, for example) is improbable in such a psychological context.

Admittedly, change is a part of the lifestyle of the aviator. Going on deployments or flying across the continent, he is constantly on the move, and, perhaps, better adapted than most for coping with these changes. After all, part of the reasons for being in the Navy relate to the adventure and stimulation that come from travel and change. The personality of the average career aviator demands this excitement. Certainly, he would not be in the field as a profession if content to hold only a "nine-to-five" desk job.

Lifestyle Changes During Deployment	
Marital separation	65
Change in responsibility at work	29
Change in living conditions	25
Revision of personal habits	24
Change in working hours or conditions	20
Change in residence	20
Change in recreation	19
Change in social activities	18
Change in sleeping habits	16
Change in eating habits	13
TOTAL	249

TABLE 2

The life changes involved in a deployment are changes in residence, family separations, changes in working conditions, sleeping and eating habits, social activities, and personal habits in general. These kinds of changes alone can add up to almost 250 points (Table 2).

Their total effect may tax the aviator's ability to cope, even though adapted to a mobile existence. Additional stresses brought on by life crises in one's personal life may add an intolerable burden to that already imposed by the job.

Of course, each person is an individual with a unique personality and method of handling stress. Some people are more susceptible to the effects of emotional factors than others. These changes in an individual's daily style of living and personal family matters may have little influence on performance until they add up to an unbearable psychological burden.

It is incumbent upon those in supervisory positions in aviation units to monitor and observe how turmoil in the personal lives of their pilots/NFOs affects their performance. If a person's performance *is* being affected, the individual should be referred to the flight surgeon for consultation.

The knowledge that changes in lifestyle, whether positive or negative, can tax your coping ability should enable you to construct a life changes factor-weighting score for yourself. This will allow you to predict, within certain probability limits, the likelihood of your being involved in a human error mishap (and guard against it). ◄

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U. S. Navy Helicopter Crew Aids Stricken Scientists

Antarctic Helicopter Rescue

Antarctic Development Squadron SIX

Bravo Zulu

Members of the rescue crew were: LTJG Doyle McClung (pilot), Oxnard, CA; LT Miles Croom (copilot), Camarillo, CA; and ADJ2 Daniel Pennington (crew chief). The airmen are on duty with VXE-6 normally based at NAS Point Mugu, CA.

MOUNT Erebus in Antarctica is a 13,500-foot active volcano. A scientific party had been flown there some days earlier by helicopter to set up a base camp for an expedition scheduled to begin last November. The party, composed of scientists from France, New Zealand, and the United States were to examine gases, lava, salt, and other minerals recently discovered in the crater.

A rescue became necessary when VXE-6 received a call from officials at Scott Base that a member of the team was in trouble. One or more of the scientists was suffering from lack of oxygen and possible overexposure in the dense, cold atmosphere.

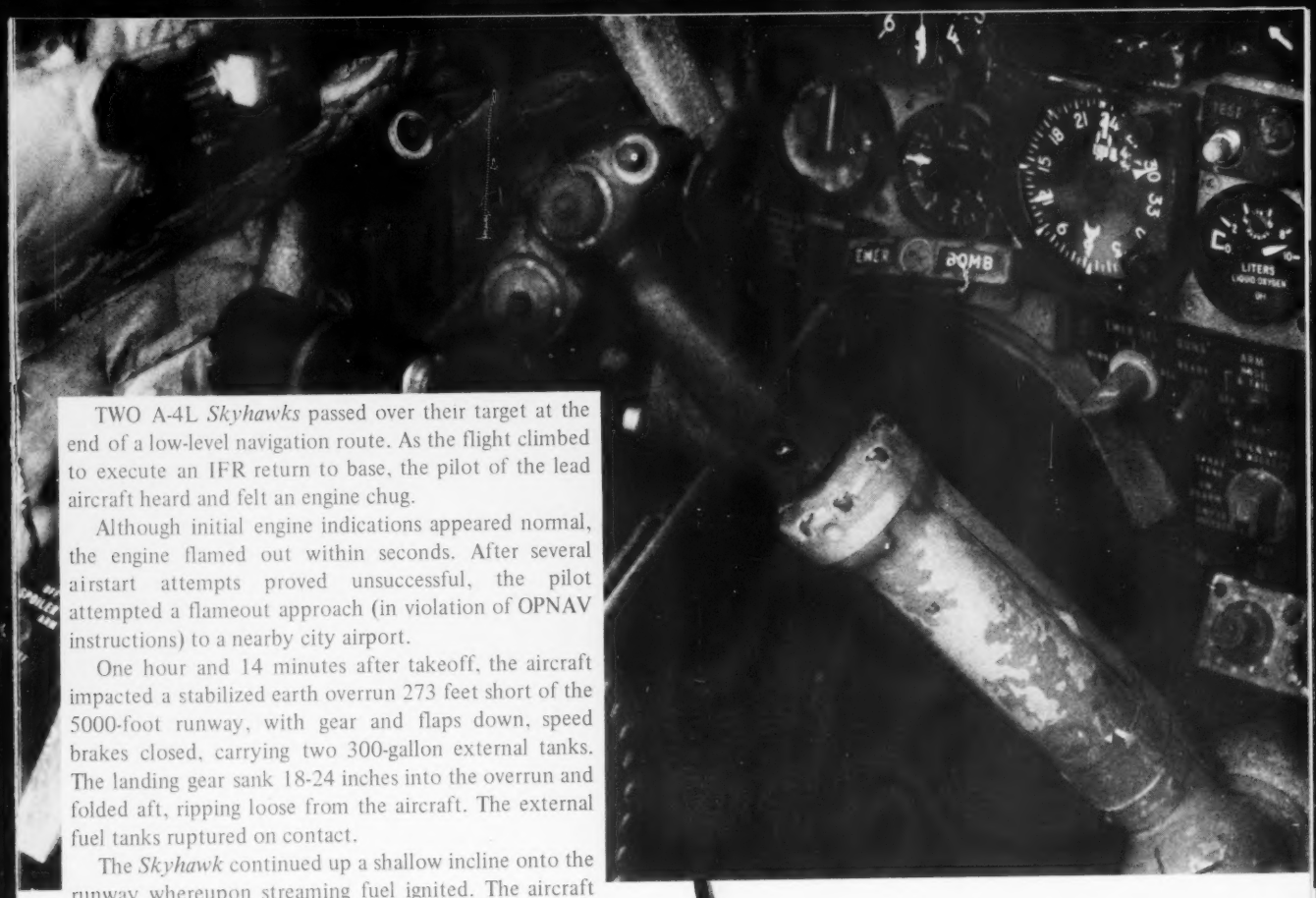
A Navy helicopter crew, consisting of LTJG Doyle McClung (PIC), LT Miles Croom, and ADJ2 Daniel Pennington, was alerted. Using the base of the volcano as a distance guide, the helo flew through heavy clouds and near-zero visibilities to bring relief. After reaching the mountain base, the pilot and crew of the UH-1N *Huey* had to figure out the best approach to the campsite. The party was hidden by low clouds and blowing snow.

The pilot said, "We circled the volcano and the weather began to worsen. Under other than emergency conditions we probably would have waited until the weather cleared." Antarctic Development Squadron SIX photographer, Richard Beaudet, assigned to record the expedition on film, said that he never saw the helo until it was on top of the camp.

The HAC delivered three cylinders of oxygen, picked up the scientist, and flew him back to McMurdo, the main U.S. base for medical observation. Later, the ill scientist was replaced and the expedition continued its work without further problems.

Well done to a professional helicopter crew! ◄

SKYHAWK FLAMEOUT



TWO A-4L *Skyhawks* passed over their target at the end of a low-level navigation route. As the flight climbed to execute an IFR return to base, the pilot of the lead aircraft heard and felt an engine chug.

Although initial engine indications appeared normal, the engine flamed out within seconds. After several airstart attempts proved unsuccessful, the pilot attempted a flameout approach (in violation of OPNAV instructions) to a nearby city airport.

One hour and 14 minutes after takeoff, the aircraft impacted a stabilized earth overrun 273 feet short of the 5000-foot runway, with gear and flaps down, speed brakes closed, carrying two 300-gallon external tanks. The landing gear sank 18-24 inches into the overrun and folded aft, ripping loose from the aircraft. The external fuel tanks ruptured on contact.

The *Skyhawk* continued up a shallow incline onto the runway whereupon streaming fuel ignited. The aircraft came to rest on the right edge of the runway and continued to burn (see photo). The pilot jettisoned the canopy and exited to escape the fire. The aircraft received strike damage.

Investigators determined that the most probable cause of this accident was the failure of the pilot to initiate external fuel transfer by placing the droptank pressurization switch to PRESSURIZE. Thereafter, he failed to maintain a check of fuselage fuel. In fact, no fuel check was made between the two aircraft at any time during the flight. The end result was eventual depletion of the fuselage tank and a flameout, even though it is strongly suspected that approximately 3800 pounds of fuel remained in the drops.

The loss of an aircraft is a high price to pay for failure to properly manage fuel. This is a function which should be second nature to the pilot of any aircraft. ◄

SAFETY and the

THE instructor/student relationship in the Naval Air Training Command has traditionally been that of god/ignoramus, not because flight students are inherently bumbling, inept vegetables, but because high performance jet aviation is a demanding task, and there are few, if any, shortcuts for just plain old experience. Thus, it is perfectly natural for these highly motivated students to hold their instructors in great awe and respect and to assume that the flight instructor knows all, sees all, forgets nothing, and does everything right.

This allegiance, devotion, and assurance of divinity is heady nectar for the new flight instructor, setting up a situation which, if not unique to the training command, at least abounds there. This phenomenon is called the "How Great Thou Art" syndrome which, simply defined, is a feeling by an aviator that he is a better pilot than he actually is.

The training command is a fertile ground for breeding circumstances conducive to this syndrome because the accommodating nature of the flight instructor easily enables him to take the student's inflated opinion of his worth over his own past memories of personal frailties. Furthermore, flight time builds up rapidly in logbooks, portraying a rather artificial level of experience since actual stick time is hard to come by as an instructor. Between these factors, the flight instructor can easily become fully indoctrinated with his aeronautical invincibility, setting up a very real safety problem.

Needless to say, no instructor could possibly go through a 2- to 3-year tour without making some error or demonstrating some lack of proficiency that might tarnish his image and remind him that he didn't always wear a red "S" on his T-shirt. To overcome these situations with minimal loss of image, however, various strategies and policies have been developed over the years and passed down as official and semiofficial doctrine of the IUT (instructor under training) syllabus.

Flight Instructor

By LT Richard P. Shipman
Naval Safety Center

For example, students can come up with some unbelievably obscure questions which even the most conscientious instructor is unable to answer. Since to admit lack of knowledge is to admit being human, the experienced flight instructor must resort to alternate solutions, such as:

- Berate the student for not thoroughly reading his NATOPS/FTI/Ground School Manual and, therefore, not knowing the answer, or . . .
- Brace the student against the wall and dress him down for not saying "sir" before, after, and during the question. If a Marine instructor is nearby, he'll be happy to have this duty relegated to him.

Airborne circumstances that challenge the flight instructor's image are more varied and thus require greater ingenuity and quick thinking to save face. A few examples:

- *Situation:* The instructor is making a full stop landing following an instrument flight and forgets to arm his spoilers. Recovery: "So you see, there's no problem stopping the TA-4 aircraft without spoilers on an 8000-foot runway." A nice additional touch is to move right into a sea story about the time the instructor bingoed into a 5000-foot strip with standing water and no spoilers even installed on the bird. Not only has the reputation been preserved, but points for the image have been scored.
- *Situation:* The meatball streaks off the bottom of the mirror on a demonstrated touch-and-go landing. Recovery: "That's the technique you want to use to maximize available rollout distance any time you have adverse runway conditions."

Thus, the "How Great Thou Art" syndrome in the training environment is propagated. This situation is not new, but rather a different aspect of an age-old safety problem – complacency. In this case, complacency is born of overconfidence. The real nature of this problem is evidenced by the following accidents:

- Loss of canopy after takeoff because of failure to lock the canopy – Delta damage.
- Crashing short of destination airport because of fuel depletion – Alfa damage.
- Staying with a burning aircraft until out of the ejection envelope – two fatalities.

These and many similar pilot factor accidents should never have happened. In all the above cases, the pilots had high total time, extensive experience in aircraft type, and considerable longevity as flight instructors. Did they consider themselves exempt from accidents because they were instructors? Was their second logbook proof that they could bypass sound procedures without penalty? Only the pilots involved could know for sure, but in all cases, it would appear they were lulled into complacency, perhaps as a result of the "How Great Thou Art" syndrome.

Be assured it is not the intent of this article to belittle flight instructors. As a whole, training command instructors are an expert and professional group of aviators, fully deserving of the student's respect and admiration. What the flight instructor must not do, however, is to assume that his "exalted" position makes him any less likely to have an accident than any other guy. What he must not assume is that his title gives him license to depart from the good flight techniques, sound judgment, and thorough knowledge of NATOPS that has allowed him to reach the position he occupies today. No number of jacket patches, logbooks, or flight hours is a guarantee of safe flight.

One of the most valid indicators of a pilot's proficiency is the long string of 0/0 entries in the accident/flight violation section of his logbook. This unblemished safety record is the real indication of "How Great Thou Art." ◄

WINTER

MAN is a tropical animal.

Ask anyone who has ever made a midnight, midwinter trip to an outhouse, clad only in skivvies and boots, if he agrees with this statement.

Better yet, ask any aviator who in summer flight gear has made the trip from a nice, warm cockpit into 12 feet of Sierra snow.

If the answer is "yes," then he is probably open to a few suggestions concerning cold weather survival. If "no," then he 1) is a cold-blooded animal, 2) could care less ("It'll never happen to me."), or 3) has not made either of the aforementioned trips.

There is little doubt that you have at one time or another put yourself in a hypothetical inflight emergency situation and, with the aid of NATOPS, logically worked your way out of it. All too often, this constructive daydreaming ends with "bailout" or "eject." You haven't carried it far enough, and you'll realize this as you glance down while descending in your chute and see Jack Frost waiting. If you have thought out the emergency up to the point of being carried back by the SAR helicopter, then you consider Jack Frost bad company and act accordingly.

Now – not during your ordeal – is the time to prepare and plan your survival. Find out what flight and survival gear is required when flying over different terrain and climatic conditions. Not only should you wear the required gear, you should know how to use it.

For example, take your SV-2A home some evening. Open it up, and spread all that gear out on the living room floor. (You won't lose anything if it is secured to the vest with Type I nylon cord according to NAVAIR 13-1-6.7.) Learn what each item is, what it's for, and how to use it properly. Use your imagination. Many items can be used for purposes other than those for which they were intended. If you end up in an actual survival situation, don't throw anything away until you're absolutely sure that it can't be used.

The same applies to the gear in your RSSKs. Get together with your squadron parachute riggers/survival

equipmentmen, and learn what's in there and how to use it. Also, ask them what types of cold weather flight clothing are available and how to properly use each item.

If you think that more is needed, you can add up to 5 pounds of extra gear to the survival vest. You can also stuff an extra set of wool longjohns, mittens, wool socks, and a watch cap into the leg pockets of your flight suit if you want to. (Wool loses less insulation when it gets wet than do cotton and most synthetics.) Remember, the greatest heat loss areas of your body are your hands, feet, and head.

Now, we're going to give you – the potential survivor – a few basic facts about cold weather survival. Combined with the "will to live," the proper gear, and a little common sense, these facts will enable you to fool around with Mother Nature and be hoisted out of any ordeal with a big grin on your face.

Analyze the situation. Prior planning, preparedness, and your actions during the first 15 minutes or so in the snow will usually determine your survivability. This first 15 minutes is not the time to panic. And it's definitely *not* the time to work yourself into a state of depression by worrying about accident investigation boards, your New Year's Resolutions, or your income tax. This *is* the time to gather up your gear, get out of the weather, relax, and analyze your situation.

SURVIVAL

By LT David B. Kelley, MSC, USN

To go or not to go. One important decision which should be made now concerns travel. Will you try to hike to civilization? Or will you stay in the immediate area? If you know beyond a shadow of a doubt where you are, where you're going, and that you can get there safely and quickly, then by all means do it. But if you have any doubts at all, *stay put!*

Build a fire. Suppose you've decided to stick around. Wise choice, considering . . . Build a large fire if plenty of natural material is available – a fire provides needed warmth and a little companionship. If not, keep it small. Wood shavings, small twigs, birch bark, a candle, or that red stuff in your SRU-31/P all make good tinder. (Although lightning will start fires, we do *not* recommend that you run around wrapped in chicken wire with tinder stuffed in your pockets for starters during a thunderstorm.)

Deadfalls, limbs from the lower sections of pine or fir trees, and the charred chunks of wood which you can find in old cedar burns are the larger stuff needed to keep your fire blazing. The chunks of wood may be wet on the outside, but they will usually be dry inside.

Don't build your fire under a snow-covered tree. You may eventually have nothing more than a pile of wet snow where your fire used to be. Also, make sure you provide a platform to separate your fire from ground snow. If you don't, you may see your fire slowly sink out of sight.

Trapped air insulates. Aviators have cursed the bulkiness of cold weather flight clothing. Important fact: the insulation value of cold weather clothing is mostly a function of the amount of dead air space which the material traps next to your skin. The more trapped air space you have, the more insulation. Because of this, the bulkiness of present cold weather clothing is a necessity. (The Naval Air Development Center is working on a suit which has little bulk and is heated by a compact, external heat source.)

During the initial change from summer to winter flight gear, your cockpit performance may deteriorate slightly, but it will soon be back up to par. Surprisingly enough, the same thing happens when you change from winter to summer gear. So don't sacrifice the bulk of your winter clothing for a little more cockpit comfort. That winter clothing may pay off later!

Keep it loose! Insulation also depends partly on the amount of material-skin contact. Insulation increases as material-skin contact decreases. Wearing your clothing loosely will not only decrease this contact, it will increase trapped air space and allow more even ventilation (see next paragraph).

Stay dry. One of the quickest ways to refrigerate your body in the cold is to get wet. When water replaces trapped air, nearly all of the insulation of your clothing is lost. *The thermal conductivity of water is about 26 times that of air, and the thermal capacity of water is*

1000 times that of air. This means that you lose more heat and you lose it faster if your clothes are wet.

A little wind will also add to your problems. The moisture evaporating off your clothing has a refrigerating action. The same principle applies to keeping fish cool in the "arctic" creel or water cool in the desert waterbag. So keep the snow brushed off your clothes.

Another way to get your clothing wet is to sweat in it. To avoid this, adjust your clothing to your level of activity. When you build a shelter, gather firewood, etc., your clothing should be well ventilated. Loosen your cuffs around your ankles and wrists, and loosen your neck zipper. This will cause evaporating perspiration to follow the heat flow from other parts of your body out of your neck opening. This "chimney effect" will keep your clothes dry.

When you rest, close off these openings. The areas of greatest heat loss are your hands, feet, and head. Try to keep them dry and well protected. Your main objective is to stay comfortably warm without sweating.

Drink plenty of water. It is very easy to become somewhat dehydrated in the cold. Your body will not always express a desire for water although it is actually needed. Drink more than you think you need.

A word of caution: Don't eat snow! You will just be wasting valuable body heat. Melt it by the fire or candle or in a plastic bag between layers of your clothing.

Build a good shelter. Two important points to remember in building shelters in the snow: 1) trapped air insulates (again), and 2) heat rises.

Don't be afraid to build a shelter made of snow – for instance, a snow cave, snow trench, tree pit, or para-igloo. Snow – especially the light, slightly compacted type – is excellent building material. It contains a lot of trapped air. Therefore, it's a good insulator. Although most snow can "breathe," it's always a good idea to dig at least one fist-sized hole to the outside for ventilation.

The warmest section of a snow shelter will be near the overhead. This is where you should be. Dig a shelf to sit/sleep on. But, separate yourself from direct contact with the snow by means of your inverted, inflated raft, your inflated anti-G suit and life preserver, or pine boughs. Cold air will naturally settle at the lower section of your shelter. Always dig a "cold well" in the floor where this frigid stuff can go.

Recognize hypothermia. Hypothermia is abnormally low body temperature. Because you, as a survivor, are using your head and are content that SAR is doing its usual outstanding job and should be here any minute now, don't let yourself be trapped into a false sense of security. Plan to stay a while. Learn to recognize and treat even the mildest symptoms of hypothermia.

Hypothermia progresses slowly at first. You feel cold,

your hands and feet become numb, and you shiver slightly. These are the initial symptoms. With the onset of heavy, uncontrolled shivering, things begin to go rapidly downhill. Then comes confusion, disorientation (you may wander about, incoherently babbling about obscure entities like the anatomical characteristics of brass monkeys), muscle rigidity, and dilated pupils. Before slipping into semiconsciousness, you'll probably become withdrawn, drowsy *(don't fall asleep),* and suffer a lapse of memory. After you become unconscious, you may experience ventricular fibrillation of your heart, your muscles will become flaccid, and your pupils will dilate widely.

If you are alone and notice some of the mild symptoms of hypothermia, don't wait to do something about them. What you want to do at this point is prevent further heat loss by getting out of the weather. Your body needs fuel to produce heat, so eat some of the things in the SRU-31/P or that candy bar you stuffed in your pocket.

A little exercise will help warm you. So will your fire. But be extremely careful when exposing cold, possibly frostbitten hands and feet to the fire. The heat radiated by the fire can cause severe burns, but you'll be too numb to notice it. You can rewarm your cold hands by drawing your arms inside your clothes and placing your hands in opposite armpits. Your cold feet can be warmed directly on your opposite thighs.

The same treatment applies to your fellow survivors. If you notice that a fellow survivor is suffering from mild hypothermia, get him out of the weather and prevent further heat loss. You can effectively rewarm his cold hands and/or feet by placing them directly on your bare stomach. If necessary, bundle him up, strip down, and crawl in with him. Although you may be sacrificing a little of your own comfort, you may well be saving his life.

If your fellow survivor is conscious, give him warm, sweet liquids, and keep him well insulated. If he is unconscious, again, keep him well insulated. Do not administer external cardiac massage. Keep manhandling to a minimum, and lay him down with his head slightly lower than the rest of his body. In no case should you consider him beyond help.

If you have prepared, your survival will be relatively easy. You'll still probably feel a butterfly or two in the pit of your stomach when you pass over and glance down at all that snow, but you'll have a definite advantage. *Prevention* of hypothermia is definitely the best cure, and the best way to prevent it is to *prepare* for it. ◄

One way to be popular is to listen to a lot of things you already know.

Ace L.

Letters

Correct the Record

Hughes Helicopters – I enjoyed reading the article "Nonaviation Ship Flight Operations" in the SEP '74 issue of APPROACH. Just to set the record straight, I would like to correct a slight error. Your opening sentence states that helicopter pilots have been operating off nonaviation ships for about a quarter of a century.

In September 1944, I was assigned flight duty aboard a Liberty ship, flying a Sikorsky R4B helicopter. The ship was an ARUF (Aircraft Repair Unit-Floating), owned and operated by the Army Air Corps. Six such units were in operation during WW II in the South Pacific. The flight deck was on the bow and it measured 40 x 80 feet.

I hope in the future you will refer to 30 years of nonaviation ship operations instead of 25 years.

Jack L. Zimmerman
Experimental Test Pilot

One Form?

NAS Anywhere – This is my little informal method of contacting you regarding Anymouse's workload. As an aviation safety officer, I have observed many methods of reporting potential hazards and feel that it sometimes gets cumbersome to keep up with the various methods. Some organizations have locally generated unsafe/safe situation/condition forms, hazard condition/situation/malpractice forms, and other forms designed to our overall effort of accident prevention. In addition, we have maintenance safetygrams and naval aviation hazard report forms.

Proposal:

Although the various forms have an important purpose, I think it would be more effective to use *one* form (and I suggest the basic Anymouse form) for reporting all unsafe/safe conditions, situations, malpractices, etc. I have even seen safety suggestions in the Anymouse box on Beneficial Suggestion forms, and indeed, some suggestions are very beneficial as concerns safety.

A little education and explaining the purpose of the basic Anymouse and using it for reporting *all* safety related information is much more effective. This is the method I use, and I even tell the people on the hangar deck that just any piece of paper will work so long as the information is acted upon and utilized. What do you think?

Name Withheld

• We're happy to get in a plug for Anymouse. These reports have proven to be very beneficial to NAVSAFECEN and we recommend their use at all levels, when appropriate. Nevertheless, we recognize that there are occasions when another reporting form may be more useful, e.g., beneficial suggestions are designed so that originators of substantial time/money saving ideas may be suitably rewarded for their efforts. In other cases, such as flight violations, reports of operational hazards, and safety UR/incident reports, it is more appropriate that a more formal reporting method be used in order that the report may be formally processed.

The most important thing, as your Anymouse report recognizes, is that safety information be passed on to those who can use it or bring about needed changes, regardless of the method used to make the report.

A Near Record

NAS North Island – I'd like to comment about the "Record of Sorts" in the SEP '74 APPROACH as it pertains to most rescues by one helicopter from a single aircraft accident at sea.

On January 11, 1971, while operating from USS IWO JIMA in WestPac, a CH-46 with 23 men onboard crashed aft of the ship. The IWO's CH-46D, piloted by CAPT (then CDR) W. J. Mulcahy, landed, water taxied, with the forward hatch open and steps down, and pulled 14 of the 23 survivors aboard. CAPT Mulcahy was assisted by LCDR R. McDonald, crew chief AT3 R. Smith, and ADJC G. Jenkins, another crewmember.

PR1 R. J. Schwaiger, A/C
AIMD

• Yes, we knew about that outstanding rescue. It was a beautiful piece of work, but falls short of the VC-8 H-3 rescue of 26 passengers from a ditched DC-9 off Roosevelt Roads.

Safety Observations

FPO, Both Coasts – After serving in both Lant and Pac squadrons, there are two items I want to mention regarding helicopter safety.

1) In one outfit, we conducted FOD walkdowns both aboard ship and on the beach. It was general practice to look for FOD even though the flight schedule might begin before we were through. This meant that sometimes rotors were being engaged in addition to engines turning up. There simply aren't enough goggles and mickey-mouse ears for everyone. Perhaps a solution would be no turnups from 0800 to 0815.

2) In the other squadron, pilots regularly hung their helmet bags on the back of their seats. When hanging there, they block the crewman's view of the gages. Someone reported an instance where the bag on the left seat caught on the collective. I suggest bags not be hung on the seats.

Name Withheld

• It isn't a good idea to schedule a FOD

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

walkdown when flight operations are going on. It's too distracting and dangerous to be walking head down, looking for FOD, when engines are being turned. It's even worse when a pilot is starting to engage rotors.

Your other point is a good one, too. Most helos have plenty of room to store helmet bags where they won't get in the way. The cockpit is no place for anything that might block vision or catch in the controls.

Re "Hurtin' Hummer"

Miami, FL – This concerns your oblivious comments relating to the "Hurtin' Hummer" reported in the OCT '74 issue of APPROACH. It's good to see that you thought the pilots gave a well-written account of the flight because they certainly didn't do anything else right.

They knew they had a sick bird and the flight was attempted with the knowledge that it was imperative to maintain VFR flight at all times. The crux of their problems was related to their violation of this basic precept. Thereafter, the below listed pilot factors added to their hair-raising experiences that might well have ended with catastrophic consequences:

- Continued VFR flight into adverse weather.
- Attempted IFR flight with known deficiencies in equipment.
- Improper IFR operation.
- Improper inflight decisions.
- Failure to use good judgment throughout the evolution.

Maj Thomas W. Watson, USMC (Ret.)

Don't Send a Boy (more)

NAS Cecil Field – Your article in the Air Breaks section of the NOV '74 APPROACH about sending a boy prompted this letter. I'm confident the CO would have been thrilled to report that an all-hands muster was held at the yardarm to witness the just reward for such negligence. However, after careful scrutiny of OPNAVINST 3750.6J, he probably found para 512f which states: "Endorsements shall not contain any reference to disciplinary action or a Field Aviator's Evaluation Board." Could your comments have been unjustified?

Take heart, your Bravo Zulus far outnumber the rare Delta Sierras.

LCDR Lee Reavis
ASO, VA-45

• With reference to AARs you are correct, and in all probability most commands carry over this reference to be applicable to para 605b for incident/ground accident reports. Unfortunately, you are not correct in stating that BZs far outnumber DSs.

Cross-check AOA

NAS Alameda – In the October issue of your fine publication, the author of "So, You're Going to Fly the *Viking*" is remiss in stating "you don't have to look up an approach speed for every pass" in reference to using AOA for flying the aircraft to touchdown. As with all mechanical gadgets, the AOA is not infallible; in fact, the AOA vane is a very vulnerable piece of equipment. Any pilot who does not cross-check his AOA against IAS and, if available, TAS and doppler readout, is not a professional.

J. P. McMahon
OIC, VA-303

• Although the author did not so specifically state, we are certain that he would be the first to advocate the prudential rule of cross-checking all appropriate instruments.

Historical Matter

Glen Mills, PA – In the AUG '74 issue, I read with interest the 1913 letter entitled "Nothing Fitted." It aroused my curiosity about Alfred A. Cunningham. I went to a book in my library, "Wings for the Fleet" by RADM George van Deurs, USN (Ret.), published by the U.S. Naval Institute in 1966, and this is what I learned.

The writer, 1st LT Alfred A. Cunningham, was Naval Aviator No. 5 and the first U.S. Marine Corps aviator. Others mentioned in the letter:

LT Smith – *Bernard L. Smith, Naval Aviator No. 6, 2nd USMC aviator.*

ENS Chevalier – *Godfrey de Courcelles Chevalier, Naval Aviator No. 7.*

Mr. Towers – *John H. Towers (later Admiral), Naval Aviator No. 3.*

LT Arnold – *Henry "Hap" Arnold, later U.S. Air Corps General.*

From this excellent book it seems Cunningham did eventually get a new machine. I always enjoy your magazine. I receive my copy as an engineer working for Boeing Vertol.

Milton H. Sheppard

Wants Article

Fort Leavenworth, KS – I am putting together a safety package for presentation at a safety meeting here. The meeting will cover instrument flight and I was reminded of an article that appeared in APPROACH some time ago entitled "The Cat and Duck Method of Instrument Flying." I would like to obtain a reprint of this article.

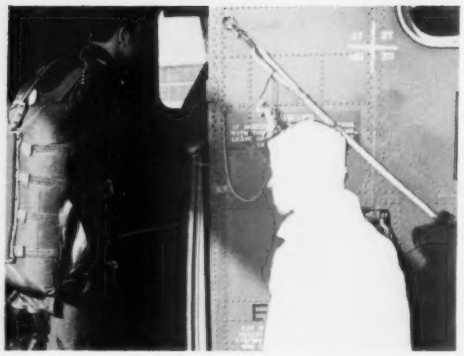
I would like to add my congratulations on a fine safety publication. Although our airfield handles only helicopters and light twin-engine aircraft, many APPROACH articles can be utilized in our daily operation. Keep up the good work.

CW2 James S. Hanson, U.S.A.
Sherman Army Airfield

• Your reprint is on the way.

Vol. 20 No. 8 NAVAIR 00-75-510

approach



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DEPARTMENTS

Our product is safety, our process is education, and our profit is measured in the preservation of lives and equipment and increased mission readiness.

PURPOSES AND POLICIES/APPROACH presents the most accurate information currently available on the subject of aviation accident prevention. Contents should not be considered as regulations, orders, or directives and may not be construed as incriminating under Art. 31, UCMJ. Photographs used to illustrate articles in APPROACH do not necessarily reflect the actual aircraft, air stations or ships that are described in the text.

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DISTRIBUTION/Requests for distribution changes should be directed to NAVSAFECEN, NAS Norfolk, VA 23511, Attn: Safety Publications Department. Phone: Area Code 804, 444-1321.

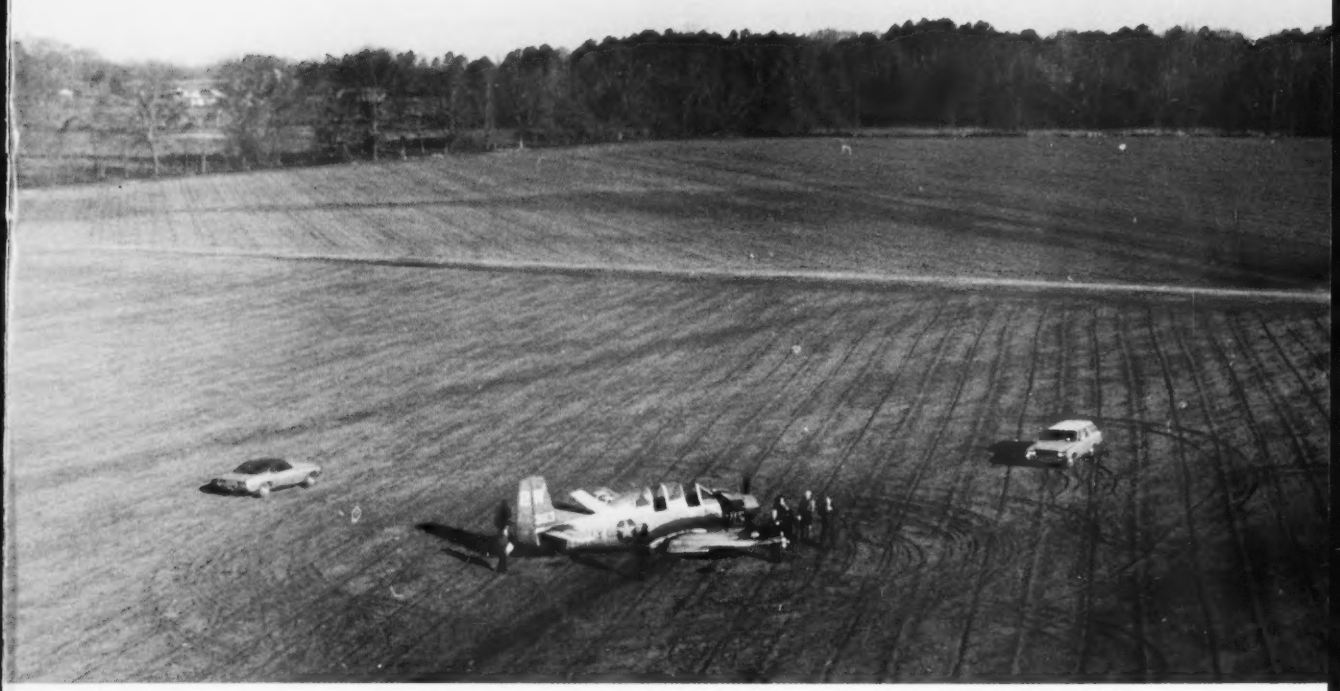
PRINTING/Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. Library of Congress Catalog No. 57 60020.

CREDITS/Our cover this month by staff artist Blake Rader depicts the Navy's versatile UH-1N performing a life-saving mission.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1975—635-024/11

"Virtually letter-perfect compliance with NATOPS procedures contributed greatly to the successful handling and outcome of this potentially disastrous mishap."

Mishap Board



LETTER PERFECT

SHORTLY after level-off at 1200 feet, during the final stages of a two-plane formation flight, a T-28C developed a rough-running engine, followed by a sump light and loss of power. ENS Henry J. Morales II, a student, was in the front seat at the controls, with LT Daniel B. Sheehan, Jr., his instructor, in the rear.

At the first sign of trouble, LT Sheehan took the controls, dropped out of formation, and set the NATOPS-recommended power for a rough-running engine. With RPM decaying (despite the addition of throttle), severe vibrations, and a strong smell of smoke in the cockpit, LT Sheehan selected a freshly plowed farmer's field for a crash landing.

Commencing the approach from a modified 90-degree position at 900 feet AGL and 115 knots, LT Sheehan aimed for the center of the field. Checklist items of full flaps, canopy emergency open, and fuel and battery OFF were accomplished on final. The aircraft touched down with the wheels up (intentionally) and a minimum sink rate and skidded to a stop 260 feet away (see photo).

Investigators concluded the engine failed because of a broken crankshaft.

LT Sheehan handled this emergency in a highly commendable manner. The mishap board credits his success in great part to the rapid and accurate compliance with NATOPS procedures. Good show! ◄

FARM FOR SALE

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FOR DETAILS:
IGNORE SAFETY
AND NATOPS PROCEDURES

Idea contributed by N. E. Hoecker